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# Electric Light & Power

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## Regulators mull scrutiny of EPRI

### *Did the institute capitulate?*

TALLAHASSEE, FL—A subcommittee of the National Association of Regulatory Utility Commissioners, spurred by the research contract dispute between the state of New Jersey and the Electric Power Research Institute, will present the results of its EPRI oversight investigation at a meeting of regulators in San Diego July 23.

The subcommittee of NARUC's Committee on Electricity was formed after the New Jersey Board of Public Utilities became angered that EPRI had by-passed New Jersey and other American pump manufacturers in awarding a research contract to a foreign firm. The New Jersey commission subsequently escrowed a state utility's EPRI dues in an effort to extract a contract concession from EPRI.

With the recent acknowledgement from EPRI that it would "support" American pump research, the specific dispute now appears to be settled (see *EL&P*, May 1984, page 1; and June 1984, page 1).

However, broader issues have been raised. "We are seeking to review their whole procedure for awarding research contracts," Florida Public Service Commissioner Joseph Cresse said of the NARUC review subcommittee's effort. Cresse is head of the subcommittee.

#### Walking a fine line

At press time the investigation report was not complete, but Cresse said it would be similar to a conventional management audit report. It would, he said, state that in general EPRI does a good job of research contract review, but, nevertheless, the subcommittee had found areas where improvements could be made.

Although New Jersey regulatory commissioner Edward Hynes had called for the formation of a "national oversight board," with state representation to monitor EPRI spending, Commissioner Cresse sought to soften the tone of the request by suggesting that it be more of a continuing review committee.

"'Oversight' conveys the image that there is something wrong here and we have to straighten it out," Cresse said.

The Florida regulator stressed that it would be inappropriate for state regulatory commissions, which have to rule on electric company contributions to EPRI, to get involved "up front" in EPRI research contract review activities.

Nevertheless, Cresse does believe that regulators should establish an on-going process that would review such contracting procedures after the fact on a generic basis. "There is not much disagreement that regulators ought to be critiquing [research contracting] results...," he offered.

Continued on page 2

## Hydro relicensing laws contemplated

The Tennessee Valley Authority's Fontana Dam in North Carolina is part of the 36 million kilowatts of installed hydroelectric facilities belonging to the federal government, according to statistics compiled by the Edison Electric Institute. Federal installations constitute about 46% of the 78 million kW installed nationally. Investor-owned utilities, as of 1982, operated facilities representing about 25 million kW, or about 32% of the total. Municipals, public power districts, and states operate, in the aggregate, about 17 million kW, or 22% of the total installed hydropower facilities. A vigorous dispute is currently underway in Congress between the public and private sectors of the electric utility industry regarding the relicensing of these increasingly valuable installations. Out of 377 hydrosite licenses held by 75 investor-owned electric utilities, 189 will be up for relicensing by December 31, 1993. The controversy focuses upon whether or not public power agencies should be shown a preference when competing with investor-owned utilities at relicensing time. A special feature exploring details of the dispute begins on page 11.

*Alternatives to diversification*

## Cut rates, market energy to 'invest' excess cash

SCOTTSDALE, AZ—Eschewing diversification as a means of profiting from current healthy electric utility cash situations, a noted industry economist has recommended that companies consider cutting rates or marketing energy as "investment" vehicles.

"Some utilities find themselves in more agreeable cash and earnings positions than in the recent past, and are puzzled as to how to handle these unaccustomed riches," says Irwin M. Stelzer of the National Economic Research Associates.

"In their anxiety to keep these monies out of the grubby hands of shareholders and ratepayers, many have decided to diversify. While we have argued strenuously that regulatory agencies should not impede utility diversification, we remain uncertain about how well many utilities are endowed with the resources necessary to [conduct] a successful diversification program...."

#### Cut rates in self interest

Given the perceived likelihood that diversification will not provide a substantially profitable outlet for most utilities' cash, Stelzer suggested that instead of simply increasing dividends (one option that utilities may pursue), companies could cut rates.

Such a suggestion, he said, might appear strange coming from one who has long believed that for years consumers have been subsidized by utility owners, Stelzer said. "But it may well be the course of action most in the self-interest of utilities with excess capacity now and for the foreseeable future."

**THE COSTS OF MARKETING PROGRAMS**

| Number of years by which construction of a new plant is accelerated | Discounted cost to stockholders from acceleration (cents/kWh) |
|---|---|
| 1 | 0.18 |
| 7 | 1.02 |
| 10 | 1.33 |
| 12 | 1.50 |

Source: National Economic Research Associates

#### Example provided

In an attempt to validate his general remarks, he provided an example where an electric company is allowed a 16 percent return on equity but is actually earning 17 percent. Here, in the short run, a two percent rate cut would bring earnings down to about the allowed level.

However, electricity demand elasticities (or how demand moves with changing price) suggest that this two percent rate cut would increase sales

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## Acid rain harms nation's forests, says U.S. report

WASHINGTON, D.C.—There is good news and bad news in the second annual report from the U.S. government's Interagency Task Force on Acid Precipitation.

The group said acid rain doesn't seem to have any effect on most commonly planted crops. However, the task force said its research shows that acid precipitation may have a more damaging effect on forests than originally thought.

These were among the findings of the recently released National Acid Precipitation Assessment Program's (NAPAP) 1983 Annual Report to President Reagan and the Congress. The group was formed in 1980 and given a ten-year mandate to study the acid rain problem.

Headed by Executive Director Chris Bernabo, the group is jointly chaired by the National Oceanic and Atmospheric Administration, the Environmental Protection Agency and the Department of Agriculture.

During 1981 and 1982, most of the task force's efforts were in planning and organizing the program. In 1983, said the NAPAP, the emphasis was shifted toward producing results.

The report said, "Recent research and survey results have tended to reduce concern about acid deposition damage to crops, while increasing general concern about possible effects on forests."

#### Crops not harmed

Although farmers apply sulfur and nitrogen to their crops in much greater amounts than can be deposited by acid precipitation, the task force said the crops don't seem to be affected.

"The few relevant studies to date suggest the most commonly planted varieties of crops are not highly susceptible to acid deposition, although some cultivers (farmers) have shown reduced yield," concluded the task force.

The task force said that sulfates contribute about two-thirds of the acidity to precipitation in the Northeast U.S., while nitrates can contribute over half of the acidity in western areas of the country.

NAPAP research found that air pollutants such as ozone have a greater effect on most crops than acid precipitation.

Said the task force, "Although future research is required to increase the certainty of our conclusions, concern over crop losses has decreased substantially. For forests, the story is different."

Previous research on forest tree productivity indicated that forests were not expected to be threatened by acid rain, said the group.

#### Heightened concerns

"However," it reported, "observed declines in tree growth and forest dieback in areas with elevated pollution levels and high acid deposition, such

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# Foreign Power Briefs

• **Ontario Hydro** has decided to proceed with a retubing of the Pickering nuclear plant's units 1 and 2. The utility said the process will be complete by 1987. The Canadian Nuclear Association reports the retubing will cost about $720 million. Both units have been shut down for several months. Ontario Hydro originally planned to restart the units later this year, but utility Chairman Milan Nastich said that early replacement of the pressure tubes was practical and more prudent. The Zircaloy-2 pressure tubes in units 1 and 2 will be replaced by zirconium-niobium tubes (the type used in CANDU reactors), said the nuclear association. As a precaution, Ontario Hydro will shut down Pickering-3 for testing of selected pressure tubes.

• **The China National Coal Development Corp. (CNCDC)** of Beijing and Bechtel have formed a company to engineer and build projects in the People's Republic of China. The joint venture, China American International Engineering, does not have any projects currently underway. Bechtel said the company initially will be looking for coal-related work.

• **The People's Republic of China** has awarded a contract worth more than $5 million to the Power Engineering Group of Siemens AG to supply 25 high-voltage $SF_6$ circuit breakers for 525-kV and seven of the same for 245-kV. Siemens said the equipment will be used in a 300-km transmission line being constructed by the North China Power Administration from Datong to Beijing.

• **China** also has awarded a contract to Gibbs & Hill, Inc., and Quadrex Corporation for consulting services for the Guangdong nuclear power station. The plant will have two 900 MW pressurized water reactors and will be located in Guangdong Province in southern China. The Gibbs & Hill/Quadrex venture will furnish estimates of the major portion of the plant; assess the quality and completeness of major bid specifications; evaluate technical services; and consult and assist in supplier negotiations. The value of the contract was not disclosed.

• **Taiwan** says it will build its fourth nuclear power plant for a cost of $4.3 billion. Chen Lan-kuo, chairman of the Taiwan Power Company, said bids from companies in the U.S., Britain, France, West Germany, Canada and Japan would be invited for the 2,000 MW plant. It is scheduled for completion in 1994.

• **The U.S. Agency for International Development's,** mission to Pakistan has selected Gibbs & Hill, Inc., to provide technical assistance for the overall management and related functions for the expansion of the Guddu Thermal Power station near Karachi, Pakistan. The $300 million expansion involves the addition of a 450 MW combined-cycle plant. Gibbs & Hill says the expansion will be complete in early 1987.

• **The United Kingdom's** Department of Energy reports that 1983 was a "year of key significance in the exploitation of the hydrocarbon reserves of the UK Continental Shelf." Drilling activity was the highest since exploration began in 1964, said the Energy Department in its annual report. Total UK oil production in 1983 was 114.9 million metric tons (including natural gas liquids), compared with 103.2 million metric tons in 1982. The report said five offshore oil fields came onstream during the past year, bringing the total number in production to 25.

• **Brazil** and the U.S. have signed an agreement for a five-year program to develop underground coal gasification technology that can be applied to the Triunfo coal deposits. The U.S. will provide technical assistance.

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# TMI-1 ruling will be delayed again

WASHINGTON, D.C.—The long-awaited NRC ruling on the restart of the undamaged TMI-1 reactor will be delayed again.

In May, an Atomic Safety and Licensing Appeal Board said that unanswered questions remain concerning GPU Nuclear's management competence.

A three-member ASLB ruled in 1981 that GPU was fit to operate the unit, but the Appeal Board said in late May that additional hearings should be held.

NRC spokesman Robert Newlin said the ASLB Appeal Board has sent the case back to the original board for further hearings on the adequacy of the TMI-1 operator training program. Also, the Appeal Board said hearings should be reopened concerning TMI-1 leak rate falsification charges.

GPU Nuclear said the NRC has enough information to make a decision in the case without further delay.

Reacting to the appeal board ruling, the NRC commissioners met June 1 and voted 3 to 1, with one abstention, to ask all the parties involved to comment on the Appeal Board's action. Commissioner James Asselstine dissented, while outgoing Commissioner Victor Gilinsky abstained from the vote.

NRC Chairman Nunzio Palladino had said the Commission would make a restart decision by June 27. The Commission gave interested parties until June 15 to comment. But, intervenor Three Mile Island Alert asked for more time and the commission voted to extend the deadline for comments until July 6.

In a prepared statement, GPU Nuclear said, "We believe that the Commission has the information available to it now to permit it to make a supportable decision in this matter and respectfully urge that it act on that information."

GPU Nuclear said in its memo to the NRC that the matters remanded to the ASLB "have been the subject of extensive materials available to the Commission and its staff since the close of the hearing before the Licensing Board."

The ASLB Appeal Board said the present state of the record in several areas didn't permit it to make an ultimate judgement in the case, said NRC's Newlin.

GPU Nuclear said the NRC has more information available to it than the Appeal Board because the Appeal Board is confined only to the record of the ASLB hearings.

The utility noted that the NRC originally projected that the hearings would be completed in one year. They are now approaching their sixth year.

# Grand Gulf's TDI diesel generators declared reliable

WASHINGTON, D.C.—After disassembling and inspecting a Transamerica Delaval, Inc. (TDI) emergency diesel generator at the Grand Gulf nuclear plant, Mississippi Power & Light said it could be declared reliable for the first cycle of the plant.

The Nuclear Regulatory Commission had ordered MP&L to reinspect one of the two Transamerica emergency diesel generators at the plant, because of questions concerning their reliability.

On August 12, 1983, the main crankshaft on one of three TDI emergency diesel generators at the Shoreham nuclear plant broke into two pieces during a load test.

After evaluating the failure at Shoreham, the NRC said it found information that questioned the reliability of all TDI diesels. So, in June, it ordered MP&L to disassemble and inspect the TDI diesel generator with the most hours of operation at the Grand Gulf plant.

Upon concluding a two-day inspection of the emergency diesel generator, the NRC said the "inspection has given confidence that the diesels are reliable and sufficient for the first cycle of operations."

The first cycle extends through the first fuel reloading, approximately 18-24 months.

### Some minor damage

MP&L said that inspection of the diesel generator's turbocharger revealed that it had sustained some minor damage to some turbine blades, because two small bolts had sheared off. The utility said it would not have affected operation of the equipment.

Ed Beldowski, manager of public relations for TDI, said he didn't think the Grand Gulf inspection was really necessary, but added that it probably helped to allay concerns about the generators.

# Regulators/EPRI . . . from page 1

"Regulators walk a fine line," he added, "analyzing the results of managerial decisions...We do not want to cross that line because if we do we lose our objectivity."

"I personally do not think regulators have any business directing the research efforts of EPRI," Cresse said.

### Questioning porkbarrelling

Asked whether the recent EPRI/New Jersey BPU dispute raised the issue of state commissioners using utility rate cases for state porkbarrelling, Cresse responded, "Yes, that's always a concern."

He noted that if state commissions began to do this "the whole thing could catch fire."

Cresse termed it "a horrible situation" if at any time a state commission were able to require that all state research money given to EPRI be spent in that state.

But he made it clear that in a separate investigation NARUC would not look at individual regulatory bodies and how they make their decisions, but at whether "EPRI conducts its affairs in an appropriate manner and does not cave in to undue pressure" to grant research contracts.

He emphasized that EPRI must be free to get the best for its money regardless of where this happens to fall geographically—whether in a particular state, the U.S. or abroad.

"If NARUC thought EPRI was porkbarrelling its projects, that would be a concern," Cresse said. But he added that he did not know if it was a concern if one commission tried to secure EPRI funding for research in its state.

The determination of whether EPRI was coerced into granting a research contract will be issued separately from the subcommittee's oversight report, Cresse said. He promised to report on his findings at about the same time the subcommittee report on EPRI contracting procedures is released.

# Transmission-Distribution Update

## Canadian power imports to rise in next 10 years

ARLINGTON, VA—Canadian power imports to the Northeast will increase to 25,000-gigawatthours (gWh) in 1990 and 35,000-gWh in 1995, according to a new study.

Electricity imports from Canada to the northeastern part of the U.S. were 17,802-gWh in 1981.

Energy Ventures Analysis, Inc., a coal forecasting service, recently released results of a study on the impact of Canadian power imports on coal demand in the Northeast.

"Hydro Quebec and Ontario Hydro over-forecasted their demand growth and overbuilt new nuclear and hydro capacity," said Seth Schwartz, director of the study. "As a result, they have a tremendous surplus of low-cost power which they are marketing to oil-fired utilities in New York and New England. The only limitation on these sales is the need to build new transmission capacity."

In many cases, according to Schwartz, the contract sales (see table) to northeastern utilities understate the actual sales expected.

### Maximum sales

The study found that maximum power sales under the Hydro Quebec contract are 24,000-gWh to New York and 6,000-gWh to New England. Schwartz said this boosts the maximum imports under the existing contracts to about 40,000-gWh.

He said this would be equal to about 20 percent of the total power demand in the Northeast and would exceed the region's coal-fired generation.

Hydro Quebec has proposed to increase its exports to New England from 690 MW to 2,000 MW by adding transmission capacity in the early 1990's.

Results from the study showed that the impact of power imports on the need to build new capacity has been dramatic. Five coal-fired plants totalling 3,158 MW have been cancelled over the last four years. Energy Ventures Analysis said electric utilities in the northeastern part of the country are forecasting a 1993 peak demand of 44 GW. Existing capacity is 50.6 GW, with 4.8 GW under construction.

### High reserve margin

With the Canadian import capacity of 6.3 GW, the firm concludes the Northeast will have a 40 percent reserve margin in 1993. The forecasting service says this means that power imports have "effectively deferred any new coal-fired power plants until after the year 2000."

Robert Sansom, president of Energy Ventures, said, "Power imports have helped to delay most of the pending coal conversions in the Northeast as well. With cash flow problems caused by building five nuclear power plants, most of the utilities can't afford the investment to convert to coal.

"Imported power reduces the capacity factor that a converted unit would achieve, which impairs the economics of coal conversion," Sansom added. "Imports will also substantially decrease oil consumption in the Northeast, reducing the incentive to convert."

United Illuminating, Public Service of New Hampshire, Central Maine Power, Northeast Utilities, Long Island Lighting, Boston Edison, Consolidated Edison and Orange & Rockland are among the utilities that have delayed coal conversions, found the study.

"The increase in power imports which we expect from 1981 to 1995 is equal to seven million tons of new coal demand," said Schwartz. "Coal will not serve new growth in this market until the next century, because the Canadian surplus is too large to be worked off."

CONTRACTS FOR CANADIAN POWER IMPORTS TO NEW YORK AND NEW ENGLAND

| Buyer | Seller | Contract Capacity (MW) | Contract Sales (GWh) | Begins | Expires |
|---|---|---|---|---|---|
| New York Power Authority | Hydro Quebec | – | 7,000<br>9,000 | 1984<br>1987 | 1987<br>1997 |
| Vermont | Hydro Quebec | 150 | – | 1985 | 1995 |
| New England Power Pool | Hydro Quebec | 690 | 3,000 | 1986 | 1997 |
| Central Maine Power | New Brunswick | 100<br>150 | 900<br>1,300 | 1983<br>1984 | 1984<br>1995 |
| Vermont | Ontario Hydro | 252 | – | 1982 | 2002 |
| Niagara-Mohawk | Ontario Hydro | 400 | 3,160 | 1983 | 1992 |
| Massachusetts Municipal Wholesale Electric | New Brunswick | 100 | – | 1982 | 1990 |
| Boston Edison | New Brunswick | 100 | – | 1982 | 1995 |
| Other | New Brunswick | 30 | – | 1982 | 1990 |

Source: Energy Ventures Analysis, Inc.

## Battelle study team to produce demand-side guidebooks

COLUMBUS, OH—Battelle's Columbus Laboratories said it is embarking on a "major project" designed to help electric utilities lower system costs and improve customer relations through the use of demand-side management.

The goal of the project is to develop a series of guidebooks for utilities to use in planning and implementing demand-side management programs.

Battelle said the project will be supported by a three-year, $1.6 million grant from the Electric Power Research Institute.

During the project, Battelle will attempt to develop practical guidelines, resource material, methods and software programs that utilities can use to analyze demand-side management programs.

Project leader David E. Jones said the focus will be on integrating the large amount of available information into a consistent form the electric industry can use.

### Initial review

Initially, Jones said the team will review the demand-side management programs of utilities, compile an inventory of approaches and develop methods utilities can use to analyze customer acceptance and response to the programs.

Also, Battelle will devise methods to assess the impacts that demand-side management approaches have on load shapes and transmission and distribution systems.

As part of the project, a periodic newsletter, *Demand-Side Management*, will be published. Interested persons can receive the free newsletter by contacting: John C. Skeleton, Battelle's Columbus Division, 505 King Ave., Columbus, Ohio 43201-2693, telephone (614) 424-4616.

## NJ development program expanded

NEWARK, NJ—Public Service Electric and Gas Company said that for the next seven years it will offer 7-15 percent lower rates to new or expanded businesses in nine New Jersey urban areas.

PSE&G Area Development General Manager John Maddocks said the BPU-approved Area Development Service is available to new or expanded commercial and industrial customers in Newark, Jersey City, Paterson, Elizabeth, Camden, Trenton, East Orange, Hoboken and Union City.

Maddocks said, "PSE&G works closely with the state of New Jersey in its economic development efforts. As a direct result of PSE&G's new service, I foresee a positive economic impact on these nine municipalities, which offer tremendous opportunities for growth and expansion."

### New customers

For new commercial or industrial customers, Maddocks said the minimum load must be 25-kW per month. For existing customers who expand, he said the minimum load is 50-kW.

## Manitoba, U.S. sign largest hydropower supply contract

WINNIPEG, MANITOBA—The Western Area Power Administration has signed a letter of intent with Canada's Manitoba province to buy 1,275 MW of hydroelectric power each year for 35 years beginning in 1993, announced Manitoba Energy and Mines Minister Wilson Parasiuk.

Manitoba said that if the sale is finalized by Dec. 31, 1984, it would be the largest power supply contract ever between the U.S. and Canada.

The power will come, said the Manitoba Energy Authority (MEA), from a $3 billion hydro plant that will be built on the Nelson River.

### New transmission facilities

MEA said new transmission facilities will have to be constructed from the proposed Limestone hydro station on the Nelson River to either Jamestown, ND or Watertown, SD. It has not yet been determined whether the facilities will be ac or dc, said MEA.

Since the Canadian National Energy Board, which must approve the sale, has a 25-year limit on export license terms, an application for a license extension will be filed after the first ten years of the agreement, said Minister Parasiuk. Either party has the right to terminate the agreement after 20 years by giving a ten year written notice and paying a termination fee.

The energy authority said the price of the electricity would be based on a percentage of the cost of Western Area Power's alternative energy sources. MEA said the sale price would never be less than a guaranteed minimum price to be negotiated between the parties.

The Canadian province also recently signed a preliminary agreement with Northern States Power to sell 500 MW a year for 12 years beginning in 1993.

### Ensure development

Said Parasiuk, "Any successful sale to the Western Area Power Administration, in addition to the proposed sale to Northern States Power, will ensure a minimum of ten years of continuous hydro development in Manitoba with significant benefits for all Manitobans."

The MEA said the province has a developed generating capacity of 4,100 MW that is 90 percent hydroelectric. Manitoba's northern river systems have the potential for an additional 6,100 MW of hydropower, said the authority.

Western Area Power, an agency of the U.S. Department of Energy, is responsible for providing electricity to more than 500 municipalities, cooperatives and private utilities.

## EEI transmission cable report out

WASHINGTON, D.C.—The Edison Electric Institute said its annual *Transmission Cable Operations* report is now available for $15 per copy.

The report describes installation and performance data on cables, joints and terminations operating at or above 69-kV. EEI estimates that the report covers between 75 percent and 95 percent of all EEI companies with such cable.

To order the publication, number 06-84-14, call EEI's order department at (202) 828-7551.